

FERMILAB POWER DISTRIBUTION SYSTEM

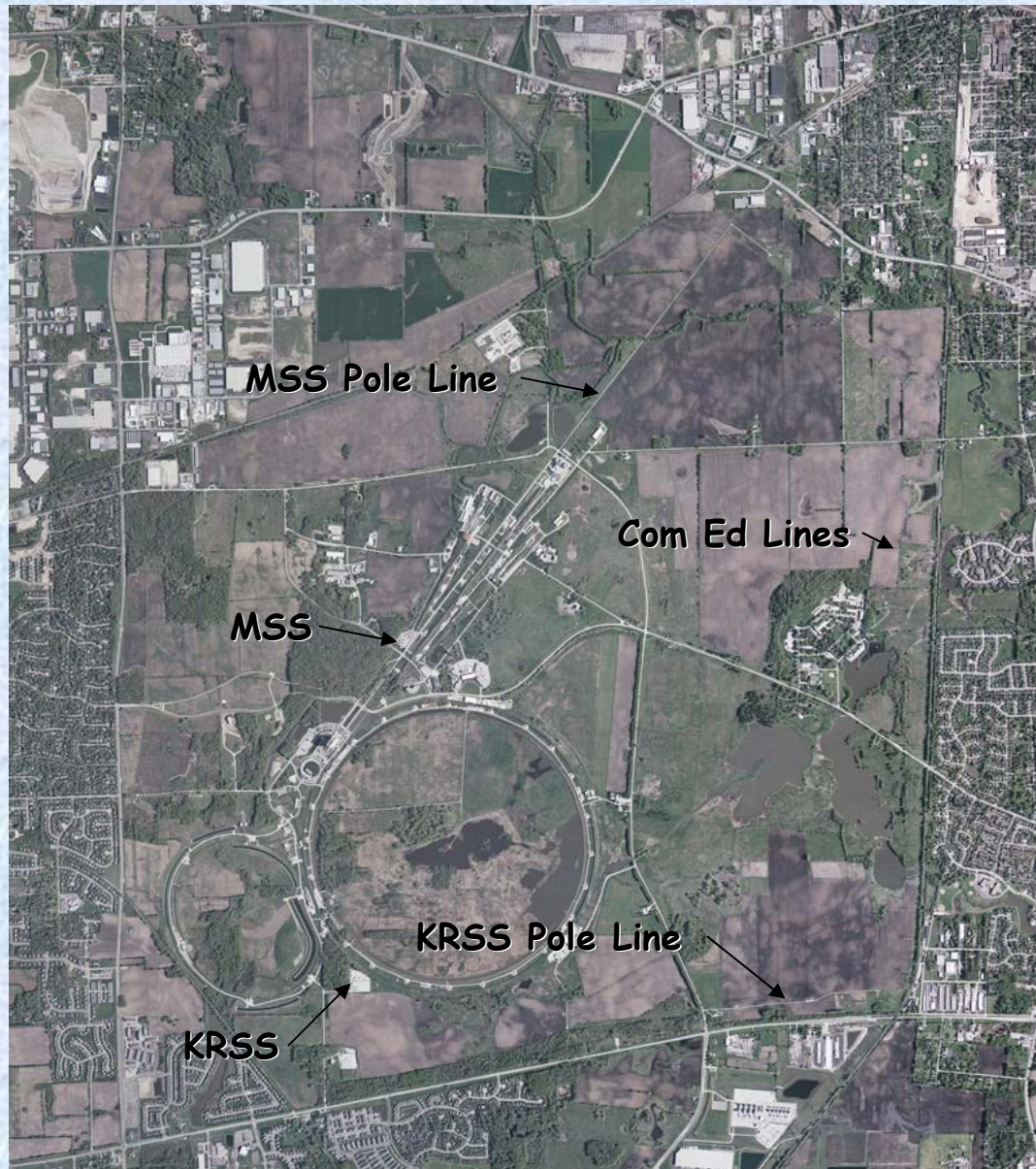
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Overview

- **Description of Overall System**
- **Identification of Component Parts**
- **Current Status of Component Parts**
- **Outlook for the Future**

Description of the Overall System

- Commonwealth Edison Distribution
- 345 kV Supplies from Com Ed to Substations
- MSS and KRSS
- 13.8 kV Distribution Feeders
- Switches and 13.8 kV to 480 V Transformers
- 480 V Distribution to Main Interior Panels and Motor Control Centers
- Additional 480 V to House Power Transformers and Local Interior Building Distribution







Com Ed to Substations

- **Com Ed to MSS**

- 2.4 Miles of Original Incoming 345 kV Conductor

- 22 Sets of Wooden Pole Structures

- 12 of 44 Individual Poles Will Be in the "Replace Within 1 Year" Category at the End of FY'06

- **Com Ed to KRSS**

- 2.3 Miles of Incoming 345 kV Conductor

- 15 Steel Poles

- All Components in Good Condition (Only in Place for 7 Years)

Primary Power Distribution

- **80 Miles of Underground 13.8 kV Conductor**
- **MSS has 23 Feeders (60 Miles)**
 - 40 Miles Replaced in the Last 10 Years
 - 8 Miles to be Replaced in FY'05
 - 12 Miles of 20-30 Year Old Cable Remains in Use
- **KRSS has 31 Feeders (20 Miles)**
 - 20 Miles in Place and Only 7 Years Old
- **241 13.8 kV Step-Down Transformers**
- **Switches, Other Hardware and Short Cable Runs Between Switches and Transformers Have Not Always been Included in the Cable Replacement Projects and are Still Original Cable**

Future Plans

- **FY'05 - Continue Feeder Replacement Program**
- **FY'06 - Replace MSS Pole Line and Conductors**
- **FY'07 - Continue Feeder Replacement Program and Include MSS Upgrades**
- **Outyears - Lowest Priority Feeders and Short Cable Runs**

In Summary

- We have 1 New Substation and 1 Old Substation
- 85% of Feeders Will be <10 Years Old at the End of FY'05 and Isolation and Switching Capability Have Been Improved
- Short 13.8 kV Cable Runs are Still a Vulnerability
- MSS Pole Line Replacement Cannot be Postponed Any Longer
- Transformers and Switches Still Pose a Vulnerability, But Not Primarily From Age of Equipment
- Are We in Better Shape Than a Few Years Ago ?

YES